MONTANA CLINICAL COMMUNICATION SURVEILLANCE REPORT Montana Department of Public Health and Human Services Room C314, Cogswell Building JTANA PO Box 202951 Helena, Montana 59620-2951

DIOVASCULAR HEALTH AND DIABETES PROGRAMS

Chronic Disease Prevention and Health Promotion Program

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HOW ARE WE DIAGNOSING AND TREATING **CARDIOMETABOLIC RISK IN MONTANA? NEW OPPORTUNITIES FOR LIFESTYLE** INTERVENTION - ANNOUNCING THE **MONTANA CARDIOVASCULAR DISEASE** AND DIABETES PREVENTION PROGRAM

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BACKGROUND

Because of an already high prevalence of overweight and steadily increasing prevalence of obesity, the primary care clinicians face an enormous challenge. Rising obesity rates threaten to dampen the remarkable progress against cardiovascular disease, and type 2 diabetes related to obesity is increasing. Primary care clinicians must not only evaluate all overweight adults individually to assess their risk for glucose intolerance and cardiovascular disease, but they must also be able to intervene effectively. Studies like the U.S. Diabetes Prevention Program and the Finnish Diabetes Prevention Program have demonstrated the ongoing benefit of relatively small and sustained amounts of weight loss from intensive lifestyle intervention, but similar interventions have not been widely available.^{1,2}

There has also been an extensive debate about how to define cardiometabolic risk secondary to insulin resistance and obesity.^{3,4} Simple tests for insulin resistance are not presently available to clinicians.⁵ The Metabolic Syndrome which includes elevated blood pressure, increased waist circumference, dyslipidemia and hyperglycemia, including both blood sugar levels that indicated impaired fasting glucose (IFG) and diabetes, was proposed as a way to identify cardiometabolic

Table 1a. Identifying Prediabetes: IGT and IFG

Condition/Classification	Test Used and Diagnostic Values
Impaired Glucose Tolerance (IGT)	Oral Glucose Tolerance Test (OGTT), 75 grams of glucose 2-hour plasma glucose = 140–199 mg/dL
Impaired Fasting Glucose (IFG)	Fasting plasma glucose (FPG) after 8-hour fast Fasting plasma glucose = 100–125mg/dL

http://www.cdc.gov/diabetes/faq/prediabetes.htm

Table 1b. Updated Metabolic Syndrome Guidelines⁽³⁾ Diagnose when at least 3 of these risk factors present

Risk Factor	Defining Level	
Waist circumference		
Non-Asian Men*	>40 in (>102 cm)	
Non-Asian Women*	>35 in (>88 cm)	
Triglyceride (TG)	≥150 mg/dL or on drug treatment for†TG	
HDL-C		
Men	<40 mg/dL or on drug treatment for ↓ HDL-C	
Women	<50 mg/dL	
Blood Pressure	≥130 mmHg systolic ≥85 mmHg diastolic	
Fasting Glucose	≥100 mg/dL or on drug treatment for † glucose	

^{*}Some non-Asian US adults with marginally increased circumference may be genetically predisposed to insulin resistance and other metabolic syndrome risk factors.

⁽³⁾ Grundy SM et al. Circulation.112, 2005.

risk in primary care settings (Tables 1a and 1b). Investigators have repeatedly shown that elevated blood glucose levels, not in the range of overt diabetes, are associated with both an increased risk of type 2 diabetes and an increased risk of cardiovascular disease.^{6,7} Others, however, suggested that pre-diabetes was adequate to define diabetes risk and questioned the "usefulness" of identifying Metabolic Syndrome.⁴ This report presents the results of a statewide survey in Montana which asked clinicians about their attitudes, barriers and treatment practices for overweight and obese adults and how they assessed cardiometabolic risk.

METHODS

Study population

In 2006, the Cardiovascular Health, Diabetes and Nutrition and Physical Activity Section at the Montana Department of Public Health and Human Services mailed a three page questionnaire to a systematic sample of licensed physicians and mid-level practitioners in Montana. The list of physicians and mid-level practitioners was obtained from the Montana Medical Association Directory of Physicians. Included in the survey were physicians who were listed as Family and General Practice, Internal Medicine, Obstetricians and Gynecologists and Internal Medicine subspecialists such as gastroenterology who could be providing ongoing care for overweight patients. Mid-level practitioners included Physician Assistants and Certified Nurse Practitioners.

Survey content

The questionnaire included questions adapted from previously published work that assess clinicians' attitudes regarding evaluating and treating overweight and obese patients, and barriers to the effective treatment of overweight and obesity.⁸ The questionnaire also included questions regarding screening for diabetes and pre-diabetes, as well as use of diagnostic codes for pre-diabetes, impaired fasting glucose and impaired glucose tolerance. Additionally, the survey asked about use of the Metabolic Syndrome diagnosis and the criteria/testing for establishing a diagnosis of Metabolic Syndrome, and the frequency of calculating body mass index (BMI) in overweight and obese adults.

Analysis

Data analyses were performed using SPSS V14.0 (Chicago, IL). Percent estimates for each survey item and 95% confidence intervals were calculated for each item. Chi square tests were used to compare the differences in the response rates between physicians and mid-level practitioners.

RESULTS

One fourth (26%; 430 of 1,625) of the potential respondents completed a questionnaire. Compared to mid-level practitioners, physician respondents were significantly more likely to be 45 years of age and older (70% vs. 64%), male (62% vs. 22%) and to have been in practice greater than 15 years (54% vs. 21%).

Over 80% of physicians and mid-level practitioners believed that obesity should be considered a disease, and that a small amount of weight loss in overweight and obese patients produced positive health benefits (Table 2). Fewer, approximately two-thirds of physicians and mid-level practitioners, believed that overweight should be considered a disease. A relatively large proportion of physicians (36%) and mid-level practitioners (49%)

Table 2. Physician and mid-level practitioner attitudes towards evaluating and treating overweight and obese patients, Montana, 2006.

	Physicians (N =168)	Mid-Level Practitioners (N =262)
	% (95% CI)	% (95% CI)
Obesity should be considered as a disease	89 (83-93)	87 (82-90)
Overweight should be considered as a disease	65 (57-72)	61 (55-67)
Small weight loss in overweight / obese adults can produce important health benefits	94 (88-97)	98 (95-99)
Only a small percentage of people who are overweight or obese can reduce their weight and maintain that loss	43 (36-51)	34 (28-39)
I feel that I am prepared to treat overweight and obese patients	64 (56-71)	51 (45-57)

believed they were not prepared to treat overweight and obese patients. There were no significant differences between physician and mid-level practitioner attitudes regarding evaluating and treating overweight and obese patients.

Over 70% of physicians and 63% of mid-level practitioners calculated BMI in their patient population. Among physicians who reported calculating this measure, 16% reportedly calculated BMI's at every visit, 32% annually, 6% once when care is established and 46% as needed. Among mid-level practitioners, 19% calculated BMI's at every visit, 24%

annually, 4% once when care is established and 54% as needed. There were no significant differences between physician and mid-level practitioner use of BMI in adult patients.

Most primary care clinicians reported that they routinely screened for diabetes in non-pregnant adults with risk factors for diabetes, although physicians (88%) were significantly more likely to screen routinely than mid-level providers (75%) (Table 3). Most recognized obesity and overweight along with other clinical risk factors as indications for diabetes screening, but age over 45 years was not as frequently cited as a criterion for screening as other criteria.

Table 3. Diabetes screening indications used by physician and mid-level practitioners, Montana, 2006.

	Physicians (N =168)	Mid-level Practitioners (N =262)
	% (95% CI)	% (95% CI)
Routinely screen for diabetes among non-pregnant adults who have risk factors for diabetes or pre-diabetes	88 (82-92)*	75 (69-80)
Subgroups of patients routinely screened		
Patients with polyuria or polydipsia	96 (91-98)	94 (90-97)
Overweight/Obese adult patients	94 (87-97)	88 (83-92)
Women with a history of gestational diabetes	88 (82-93)	85 (80-90)
Patients aged 45 years and older	64 (55-72)	77 (70-82)*
Patients with a family history of type 2 diabetes	92 (86-96)	94 (89-96)
Patients with diagnosed hypertension	79 (71-86)	81 (75-86)
Patients with diagnosed hyperlipidemia	87 (80-92)	85 (79-89)
Patients with a history of heart attack or stroke	88 (81-93)	82 (76-87)
Patients with clinical conditions associated with insulin resistance	88 (82-92)	93 (89-96)

^{*}P <u><</u>0.05

Table 4. Laboratory tests frequently used by physicians and mid-level practitioners to screen for and confirm a diagnosis of diabetes, Montana, 2006.

	Physicians (N =168)	Mid-level Practitioners (N =262)
	% (95% CI)	% (95% CI)
Laboratory test(s) used for initial screening		
Random blood glucose	58 (50-67)	58 (51-65)
Fasting blood glucose	90 (84-94)	89 (83-92)
Hemoglobin A1c	42 (33-51)	42 (35-49)
Oral glucose tolerance test	13 (8-20)	13 (9-18)
Laboratory test(s) used to confirm diagnosis		
Random blood glucose	18 (12-26)	23 (18-30)
Fasting blood glucose	62 (54-70)	68 (61-74)
Hemoglobin A1c	81 (73-87)	76 (69-81)
Oral glucose tolerance test	39 (31-48)	40 (33-47)
Serum insulin	12 (7-19)	20 (15-26)

Table 5. Screening for diabetes and use of diagnosis codes for pre-diabetes, impaired fasting glucose and impaired glucose tolerance among physicians and mid-level practitioners, Montana, 2006.

	Physicians (N =168)	Mid-level Practitioners (N =262)
	% (95% CI)	% (95% CI)
Routinely screen for diabetes among non-pregnant adults who have risk factors for diabetes or pre-diabetes	88 (82-92)*	75 (69-80)
Use the diagnosis pre-diabetes	26 (19-35)	35 (29-42)
Use alternative diagnoses (IFG or IGT) for patients at high risk for diabetes	58 (49-66)	61 (54-68)
Order a GTT on a non-pregnant adult to diagnose IGT (often)	7 (4-14)	10 (7-16)

^{*}P <u><</u>0.05

Table 6. Use of the Metabolic Syndrome diagnosis and the criteria / testing for establishing a diagnosis among physicians and mid-level practitioners, Montana, 2006.

	Physicians	Mid-level Practitioners
	(N =168)	(N =262)
	% (95% CI)	% (95% CI)
Use the diagnosis Metabolic Syndrome	70 (62-77)	59 (52-65)
Criteria/tests used most frequently to identify Metabolic Syndrome		
Clinical impression	68 (58-77)	68 (60-75)
Hypertension	87 (78-92)	87 (80-92)
Abnormal lipid profile	96 (89-98)	95 (90-98)
Abnormal blood glucose	94 (87-98)	95 (90-98)
Obesity	97 (90-99)	93 (88-96)
Waist Circumference	49 (39-59)	63 (55-70)*
Measure waist circumference at least once in patients with Metabolic Syndrome		
Often	6 (3-16)	11 (8-16)
Sometimes	21 (14-28)	20 (15-26)
Calculate a body mass index (BMI) at least once in patients with Metabolic Syndrome		
Often	49 (40-57)	48 (42-55)
Sometimes	23 (17-31)	20 (16-26)

^{*}P <u><</u>0.05

The vast majority reported using fasting blood glucose for the initial screening, and over half used random blood glucose determinations (Table 4). Over 40% reported using A1c as an initial screening test for diabetes. To confirm the diagnosis, over three quarters of primary care providers reported using A1c. Interestingly, almost 20% of mid-level practitioners responded that they utilized serum insulin to screen for diabetes. To describe individuals at high risk of diabetes, only one quarter to one third of primary care clinicians reported that they actually used the diagnosis of pre-diabetes (Table 5). Over half reported using alternative diagnoses. But few (10%) reported using oral glucose tolerance testing often to diagnose Impaired Glucose Tolerance (IGT) formally.

Most primary care clinicians reported using the diagnosis of Metabolic Syndrome (Table 6). However, physicians were significantly less likely than mid-level practitioners to use waist circumference as a criterion for the diagnosis (49% vs. 63%, respectively). Only 10% of clinicians reported that they measured waist circumference often.

Only one-third of physicians and midlevel practitioners reported often referring overweight and obese patients to a dietitian or nutritionist, and fewer reported referring to a nurse, weight loss program or self-help program. But significantly more mid-level practitioners reported often referring these patients to an exercise specialist or program compared to physicians (24% vs. 15%, respectively) (Table 7).

Table 7. Frequency of referrals of overweight and obese patients to programs or specialists among physicians and mid-level practitioners.

	Physicians (N =168)	Mid-level Practitioners (N =262)
	% (95% CI)	% (95% CI)
Dietitian/nutritionist	36 (25-45)	34 (28-40)
Nurse	4 (2-9)	9 (6-14)
Exercise specialist or program	15 (10-23)	24 (19-31)*
Weight loss programs	20 (14-28)	23 (18-29)
Self-help programs	19 (13-27)	17 (13-23)

^{*}P ≤0.05

CONCLUSIONS

Our findings show that responding clinicians recognized the serious consequences of obesity and the potential benefits of a small amount of sustained weight loss, but referral resources were not always available to treat obesity. The Montana Department of Health and Human Services has begun efforts to help meet the challenge. With funding appropriated during the 2007 Montana Legislative session, the Montana Diabetes Project completed a review process in November 2007 and recently selected four sites in Montana to demonstrate the feasibility of implementing the lifestyle intervention used in the Diabetes Prevention Program, the landmark multi-center clinical trial that compared intensive lifestyle intervention with metformin and placebo to prevent diabetes in high risk individuals.1 The clinical trial ended one year earlier than planned because the results were so clear: the lifestyle intervention group reduced their risk of developing diabetes by 58%, while participants who took metformin reduced their risk of developing diabetes by 31%.

Despite the limitations of this survey, it is clear that responding primary care clinicians in Montana routinely assess cardiometabolic risk in overweight and obese patients. Physicians were more likely than mid-level practitioners to report routinely screening for diabetes in their overweight patients with specific diabetes risk factors. But few reported using formal glucose tolerance testing. Although the American Diabetes Association does not recommend using A1c to screen for diabetes, many respondents reported using A1c to screen and to confirm a diagnosis.9 And the use of serum insulin testing reported in the survey for the diagnosis of diabetes is not supported by evidence currently available.^{5,10} Although primary care clinicians reported screening for

diabetes, they used the diagnosis of Metabolic Syndrome more commonly than the term prediabetes to diagnose overall cardiometabolic risk.

Because of the implementation of intensive lifestyle interventions translated directly from the Diabetes Prevention Program, clinicians in several Montana communities will have the opportunity to diagnose and refer patients with cardiometabolic risk factors for comprehensive lifestyle intervention in early 2008. The results of this survey may help intensify the efforts of primary care clinicians throughout Montana. And the newly funded Montana Diabetes Prevention Program will provide an important translation project to increase community-based resources to address cardiometabolic risk in patients across the state.

2007 Montana Cardiovascular Disease and Diabetes Prevention Program Awardees:

Community Medical Center - Missoula
Holy Rosary Healthcare - Miles City
St. Peter's Hospital in collaboration
with Lewis and Clark County
Health Department - Helena
St. Vincent Healthcare Foundation - Billings

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SAVE THE DATE!

MONTANA CARDIOVASCULAR HEALTH SUMMIT – HOLIDAY INN AT THE PARK, MISSOULA, MONTANA, APRIL 4, 2008

The Cardiovascular Health Program's annual professional conference will be held on Friday, April 4th, 2008 in Missoula, Montana at the Holiday Inn at the Park. For more information, contact Crystelle Fogle at (406) 947-2344 or e-mail cfogle@mt.gov.

SAVE THE DATE!

WYOMING CHRONIC DISEASE

CONFERENCE – LITTLE AMERICA HOTEL,

CHEYENNE, WYOMING, MAY 7–8, 2008

The Wyoming Chronic Disease Conference will be held on Wednesday and Thursday, May 7-8, 2008 in Cheyenne, Wyoming at the Little America Hotel. For more information, contact Betty Holmes at (307) 777-6011.

SAVE THE DATE!

DIABETES PROFESSIONAL

CONFERENCE – HOLIDAY INN, BOZEMAN,

MONTANA, OCTOBER 23-24, 2008

The Montana Diabetes Project's professional conference will be held on Thursday and Friday, October 23-24, 2008 in Bozeman Montana at the Holiday Inn. This year's conference will feature keynote speaker Irl Hirsch MD, Professor of Medicine at the University of Washington Medical Center.

WHAT ARE THE MONTANA DIABETES PREVENTION AND CARDIOVASCULAR **HEALTH PROGRAMS AND HOW CAN WE BE CONTACTED?**

The Montana Diabetes Control and Cardiovascular Health Programs are funded through cooperative agreements with the Centers for Disease Control and Prevention, Division of Diabetes Translation (U32/CCU822743-05), the Division for Heart Disease and Stroke Prevention (1U50 DP000736-01) and through the Montana Department of Public Health and Human Services.

The mission of the Diabetes Control and Cardiovascular Health Programs is to reduce the burden of diabetes and cardiovascular disease among Montanans. Our web pages can be accessed at http://www.diabetes.mt.gov and http://montanacardiovascular.state.mt.us.

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